

T. Konishi  
U.S. Serial No. 09/777,314  
Page 2 of 5

**Amendments to the claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of claims:**

Claim 1 (currently amended): A solid-state image pickup device comprising a plurality of light receiving sections formed on a semiconductor substrate, at least one vertical transfer section for transferring charges read from the light receiving sections in a vertical direction and a horizontal transfer section for transferring charges transferred by the vertical transfer section in a horizontal direction, wherein

said solid-state image pickup device is provided with a charge discharge gate which is formed adjacent to a connection of ~~the each~~ vertical transfer section and the horizontal transfer section and depletes charges in ~~the each~~ vertical transfer section, and a charge discharge drain formed adjacent to ~~the each~~ charge discharge gate, and

signal charges in the vertical transfer section are discharged from ~~the each~~ charge discharge gate to ~~the each~~ charge discharge drain by simultaneously applying a voltages having high-low voltage ratios corresponding to decimation ratios to the charge discharge gates for performing an arbitrary decimation in an arbitrary timing.

Claim 2 (original): The solid-state image pickup device according to claim 1, wherein

a layer directly under the gate having the same conductive type as that of the vertical transfer section is formed under the discharge gate positioned between the vertical transfer section and the discharge drain.

Claim 3 (original): The solid-state image pickup device according to claim 1, wherein

a layer directly under the gate having the same conductive type as that of the vertical transfer section is formed under the discharge gate positioned between the vertical transfer section and the discharge drain in the same process of forming the vertical transfer section.

T. Konishi  
U.S. Serial No. 09/777,314  
Page 3 of 5

Claim 4 (original): The solid-state image pickup device according to claim 1, wherein the discharge gate covers at least part of the vertical transfer section.

Claim 5 (original): The solid-state image pickup device according to claim 1, wherein a voltage applied to the discharge drain is made variable and a drive timing of a voltage applied to the discharge drain is synchronized with a drive timing of a voltage applied to the discharge gate.

Claim 6 (original): The solid-state image pickup device according to claim 5, wherein a pulse width applied to the discharge drain covers at least a pulse applied to the discharge gate in a discharge operation mode where the discharge drain is driven while synchronized with driving of the discharge gate.

Claim 7 (original): The solid-state image pickup device according to claim 1, wherein one discharge drain is provided between the neighboring vertical transfer sections and signal charges in the two vertical transfer sections positioned on both sides of the discharge drain are discharged to this one discharge drain via the discharge gate provided adjacent to the vertical transfer sections.

Claim 8 (original): The solid-state image pickup device according to claim 1, wherein the vertical transfer section provided with the discharge drain and the vertical transfer section not provided with the discharge drain are arbitrarily set and the combinations of the set discharge drains are arranged on a plurality of stages in the vertical direction.

Claim 9 (currently amended): The solid-state image pickup device according to claim 1, wherein ~~the each~~ charge discharge gate and ~~the each~~ charge discharge drain are formed adjacent to each connection of the vertical transfer section and the horizontal transfer section, ~~and voltage having a high-low voltage ratio corresponding to a decimation ratio is simultaneously applied to each charge-discharge gate for performing an arbitrary decimation.~~